

Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 1-12B as outlined in the Notice of Draftperson's Patent Drawing Review, sent June 19, 2003. These sheets, which include Figs. 1-12B, replace the original sheets including Figs. 1-12B.

Attachment: Replacement Sheets

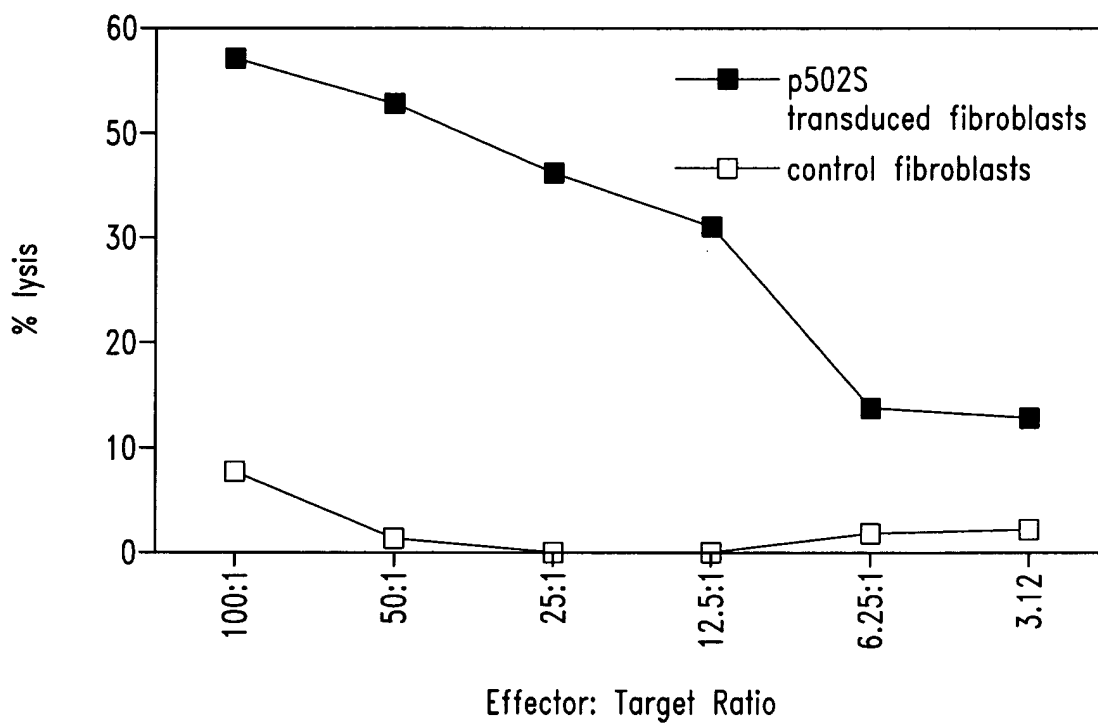


Fig. 1

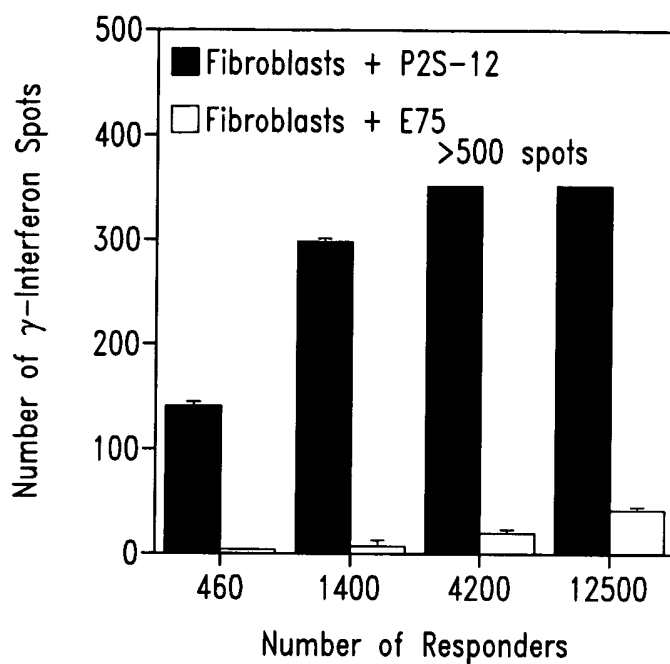


Fig. 2A

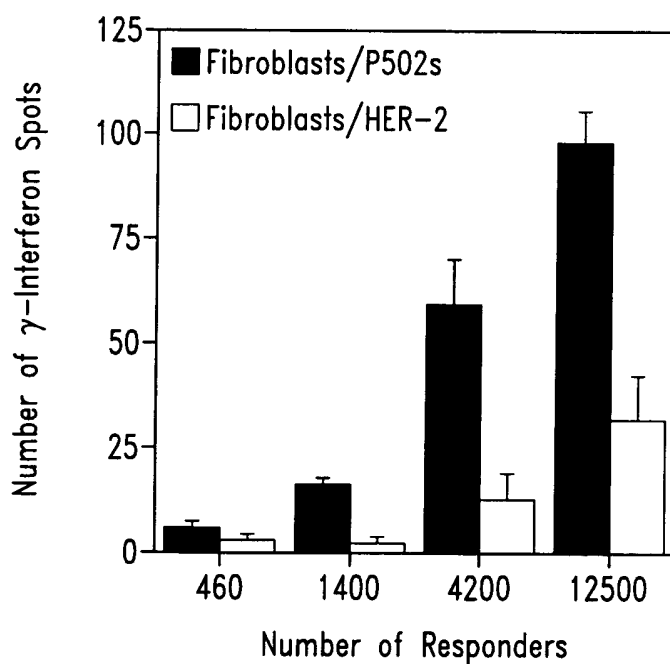


Fig. 2B

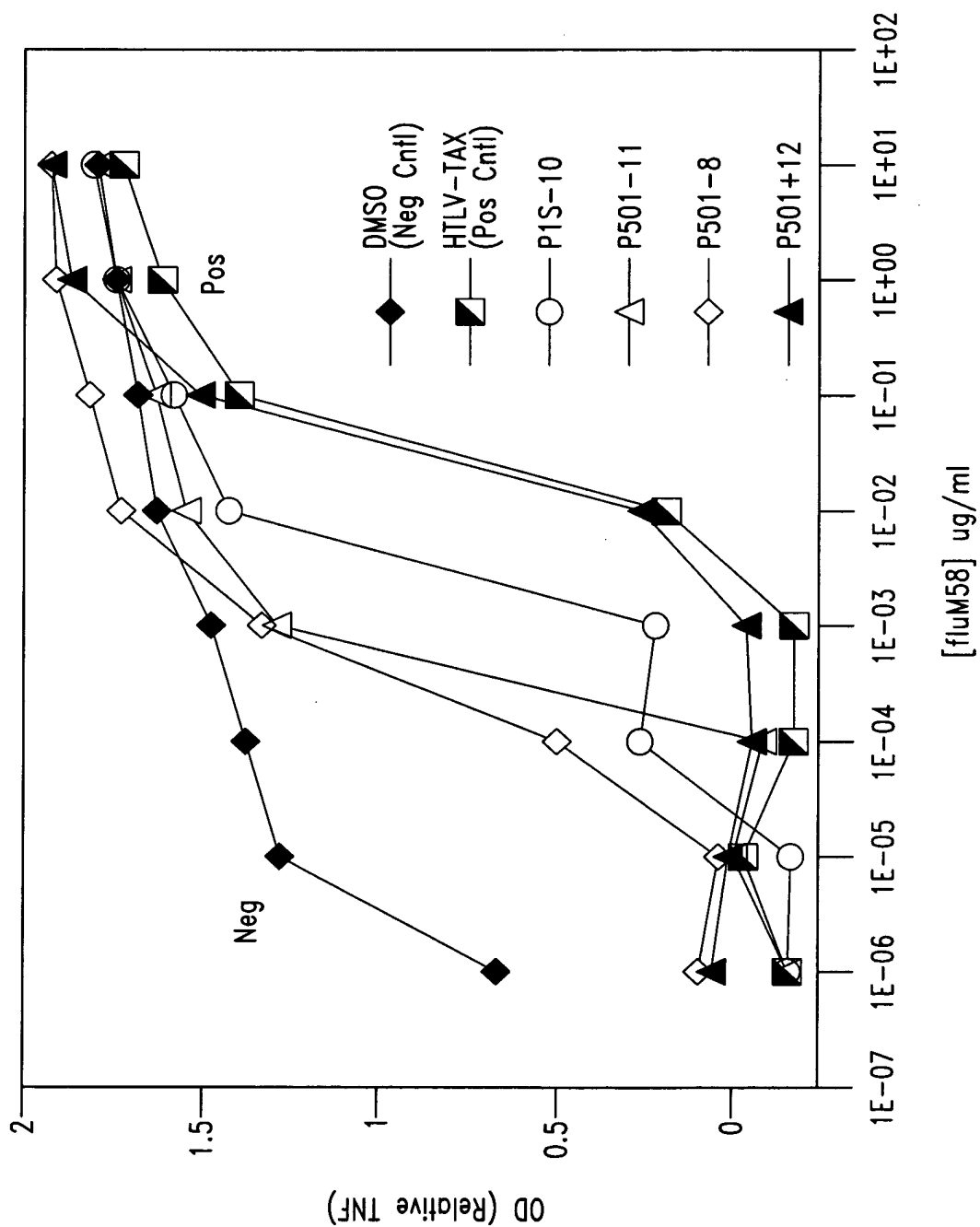


Fig. 3

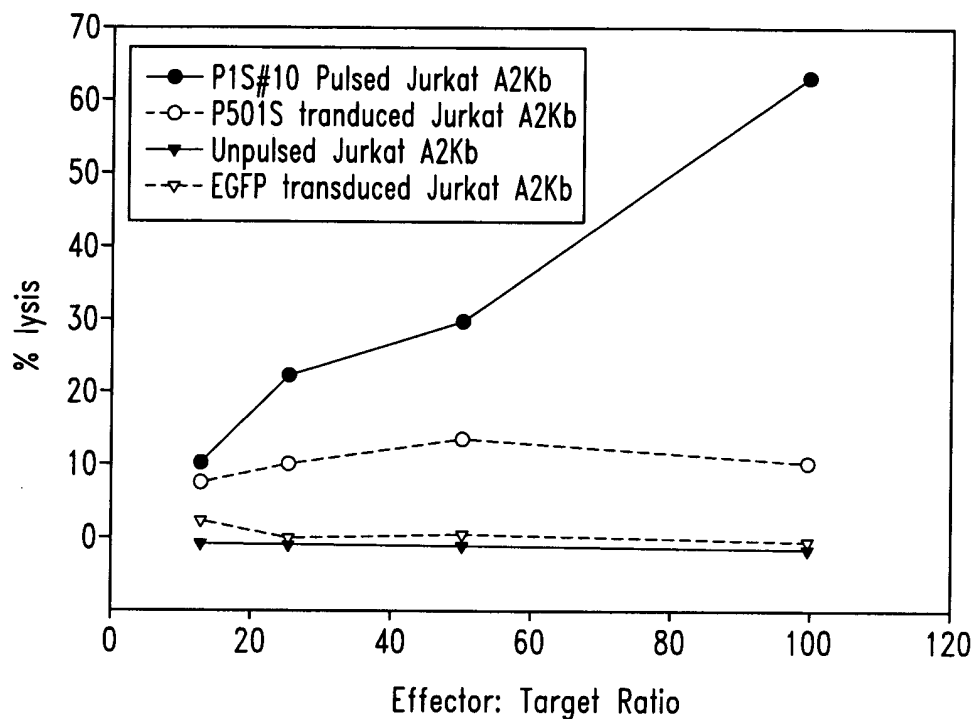


Fig. 4

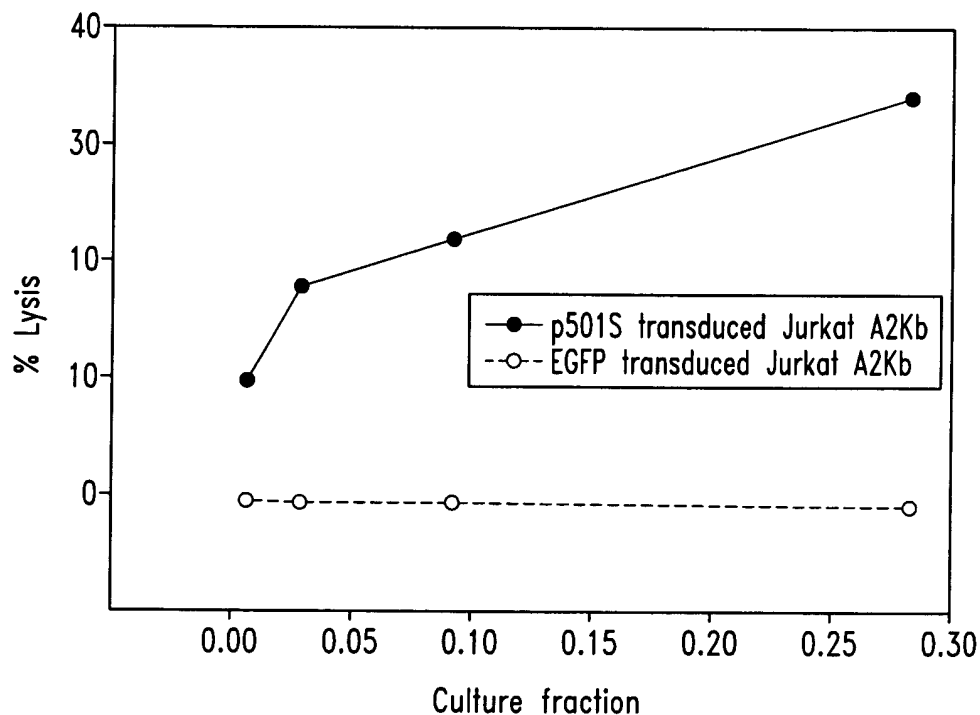


Fig. 5

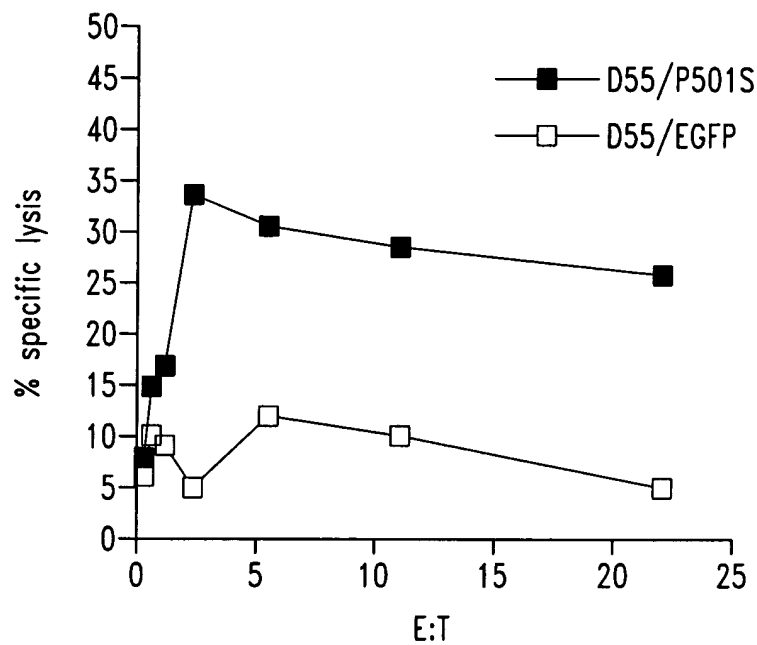


Fig. 6A

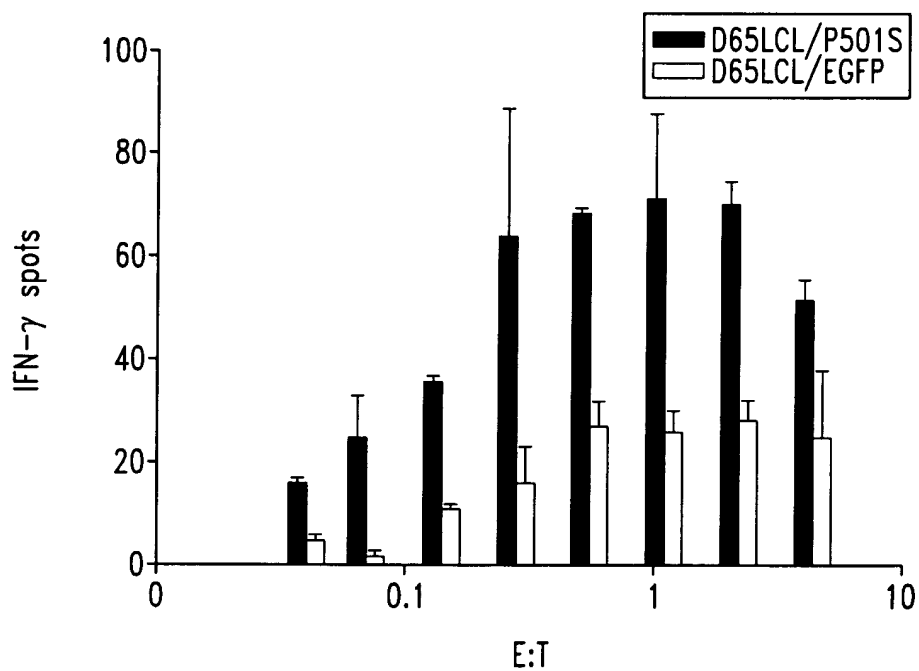
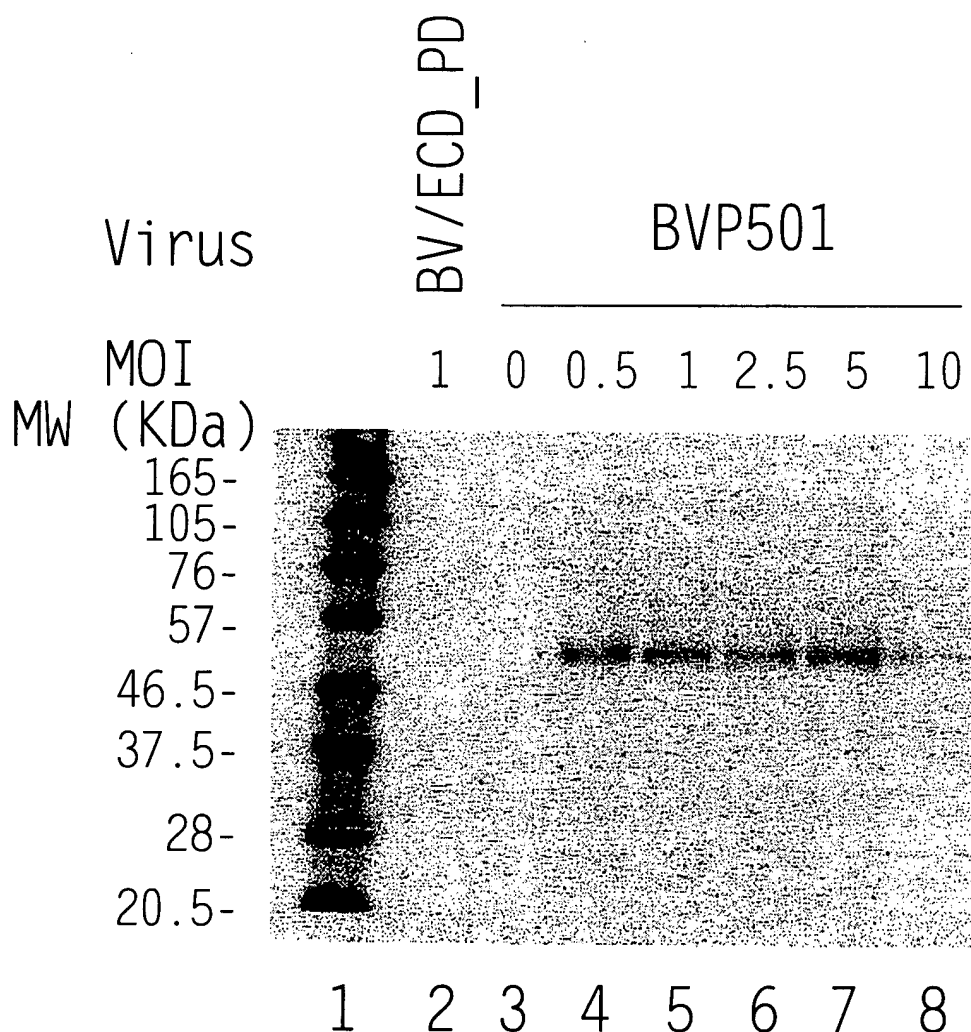


Fig. 6B

Expression of P501S
by the Baculovirus Expression System



C 6 million high 5 cells in 6-well plate were infected with an unrelated control virus BV/ECD_PD (lane2), without virus (lane3), or with recombinant baculovirus for P501 at different MOIs (lane 4-8). Cell lysates were run on SDS-PAGE under the reducing conditions and analyzed by Western blot with a monoclonal antibody against P501S (P501S-10E3-G4D3). Lane 1 is the biotinylated protein molecular weight marker (BioLabs).

Fig. 7

FIGURE 8. Mapping of the epitope recognized by 10E3-G4-D3

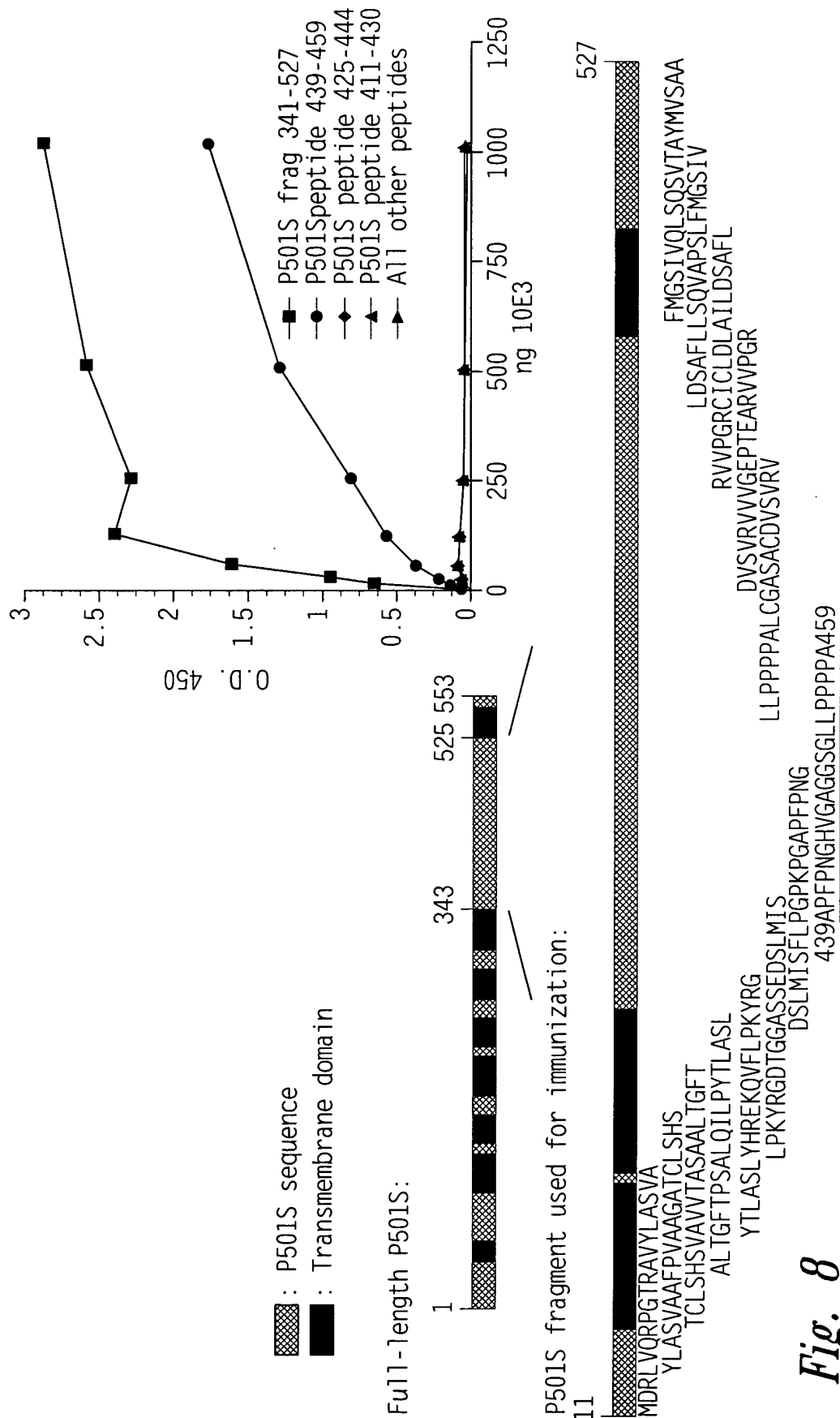


Fig. 8

Schematic of P501S with predicted
transmembrane, cytoplasmic, and extracellular regions

MVQRLWVSRLLRHRK AQLLLVNLLTFGLEVCLAAGIT **YVP**LLLEVGVEEKFM
TMVLGIGPVLGLVCYPLLGSAS

DHWRGRYGRRRP FIWALSLGILLSLFLIPRAGWL **AGLLCPDPRPLE** LALLILGVGLLDFCGQVCFTPL

EALLSDLFRDPDHCRC AYSVYAFMISLGGCLGYLLPAI **DWDTSALAPYLGTQEE**

CLFGLLTLIFLTCAATLLV *AEEAALGPTEPAEGLSAPSLSPHCCPCRARLAFRNLGALLPRL*

HQLCCRMPTLRR LFVAELCSWMALMTFTLFYTDF **VGEGLYQGV**PRAEPGTEARRHYDEGVR

MGSLGLFLQCAISLVFSLVM *DRLVQRFGTRAVYLAS* VAAFPVAAGATCLSHSVAVVTA **SAA**

LTGFTFSALQILPYTLASLY *HREKQVFLPKYRGDTGGASSED*SLMTSFLPGPKPGAPFPNGHVGAGGSGL

*LPPPPALCGASACDVSVRVVVGEPT*EARVVPGRG ICLDLAILDSAFLLSQVAPSLF **MGSIVQLSQS**

VTAYMSAAGLGLVAIYFAT *QVVFDKSDLAKYSA*

Underlined sequence: Predicted transmembrane domain; **Bold sequence**:
Predicted extracellular domain; *Italic sequence*: Predicted intracellular
domain. Sequence in bold/underlined: used generate polyclonal rabbit
serum

Localization of domains predicted using HMMTOP (G.E. Tusnady and I. Simon
(1998) Principles Governing Amino Acid Composition of Integral Membrane
Proteins: Applications to topology Prediction. J. Mol Biol. 283, 489-506.

Fig. 9

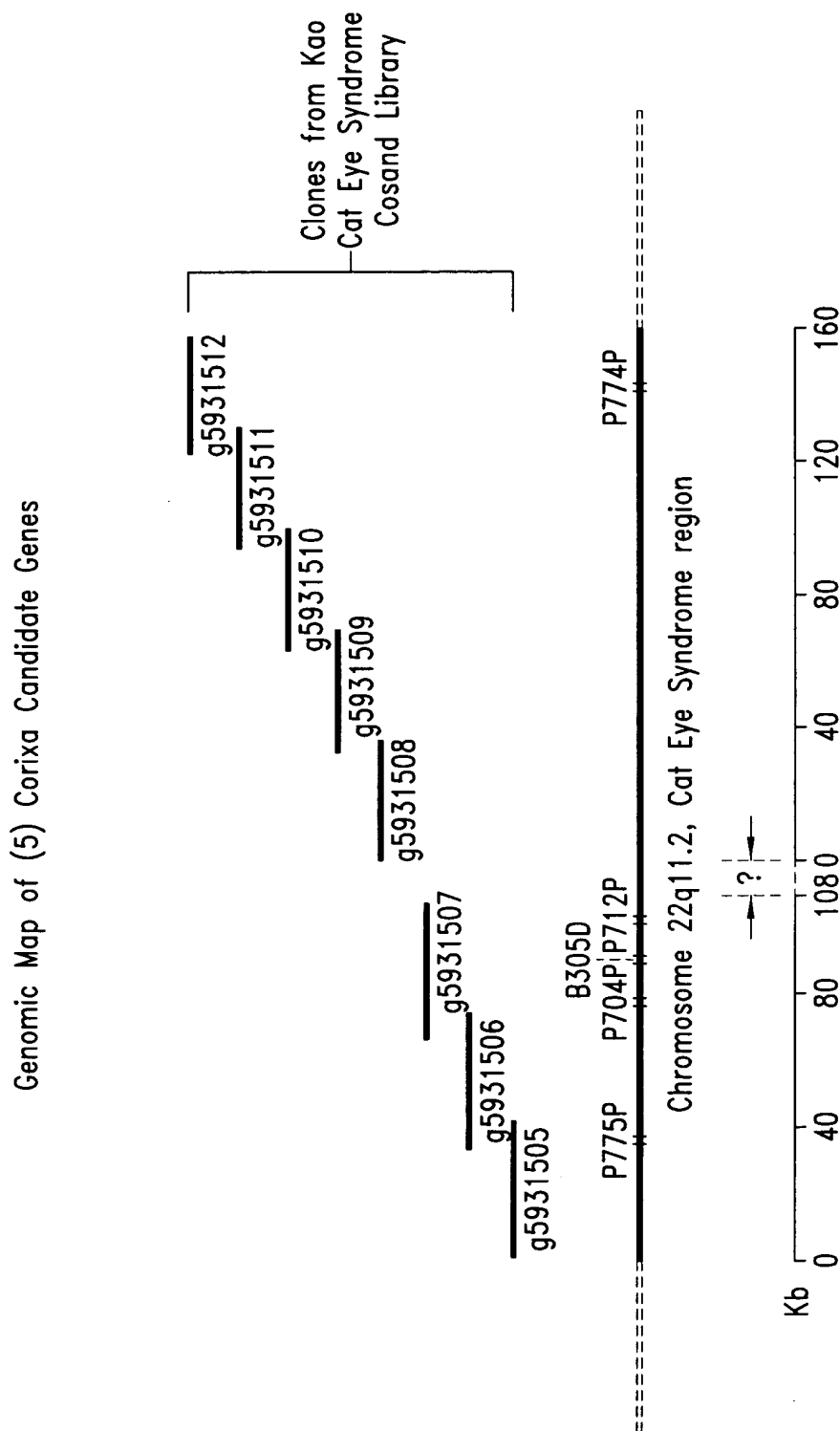


Fig. 10

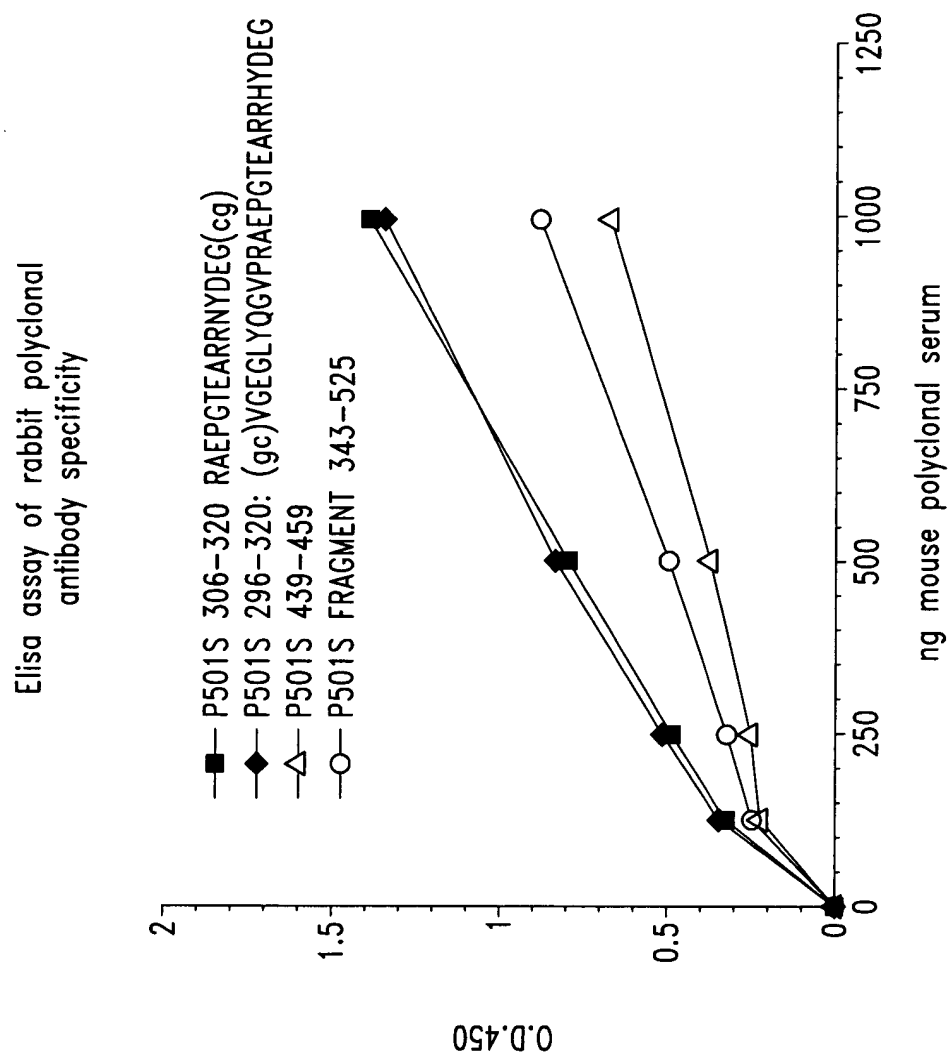


Fig. 11

GTCACCTAGG AAAAGGTGTC CTTTCGGGCA GCCGGGCTCA GCATGAGGAA CAGAAGGAAT 60
GACACTCTGG ACAGCACCCG GACCCTGTAC TCCAGCGCGT CTCGGAGCAC AGACTTGTCT 120
TACAGTGAAG GCGACTTGGT GAATTTTATT CAAGCAAATT TTAAGAAACG AGAATGTGTC 180
TTCTTTACCA AAGATTCCAA GGCCACGGAG AATGTGTGCA AGTGTGGCTA TGCCCAGAGC 240
CAGCACATGG AAGGCACCCA GATCAACCAA AGTGAGAAAT GGAACACAA GAAACACACC 300
AAGGAATTC CTACCGACGC CTTTGGGGAT ATTCAGTTTG AGACACTGGG GAAGAAAGGG 360
AAGTATATAC GTCTGTCTCG CGACACGGAC GCGGAAATCC TTTACGAGCT GCTGACCCAG 420
CACTGGCACC TGAAAACACC CAACCTGGTC ATTTCTGTGA CCGGGGGCGC CAAGAACTTC 480
GCCCTGAAGC CGCGCATGCG CAAGATCTTC AGCCGGCTCA TCTACATCGC GCAGTCCAAA 540
GGTGTCTGGA TTCTCACGGG AGGCACCCAT TATGGCCTGA CGAAGTACAT CGGGGAGGTG 600
GTGAGAGATA ACACCATCAG CAGGAGTTCA GAGGAGAATA TTGTGGCCAT TGGCATAGCA 660
GCTTGGGGCA TGGTCTCCAA CCGGGACACC CTCATCAGGA ATTGCGATGC TGAGGGCTAT 720
TTTTTAGCCC AGTACCTTAT GGATGACTTC ACAAGGGATC CACTGTATAT CCTGGACAAC 780
AACCACACAC ATTTGCTGCT CGTGGACAAT GGCTGTCTATG GACATCCCAC TGTCGAAGCA 840
AAGCTCCGGA ATCAGCTAGA GAAGCATATC TCTGAGCGCA CTATTCAAGA TTCCAACAT 900
GGTGGCAAGA TCCCCATTGT GTGTTTTGCC CAAGGAGGTG GAAAAGAGAC TTTGAAAGCC 960
ATCAATACCT CCATCAAAAA TAAATTCCT TGTGTGGTGG TGGAAGGCTC GGGCCGGATC 1020
GCTGATGTGA TCGCTAGCCT GGTGGAGGTG GAGGATGCCC CGACATCTTC TGCCGTCAAG 1080
GAGAAGCTGG TGCCTTTTTT ACCCCGCACG GTGTCCCGGC TGTCTGAGGA GGAGACTGAG 1140
AGTTGGATCA AATGGCTCAA AGAAATTCTC GAATGTTCTC ACCTATTAAC AGTTATTAAA 1200
ATGGAAGAAG CTGGGGATGA AATTGTGAGC AATGCCATCT CCTACGCTCT ATACAAAGCC 1260
TTCAGCACCA GTGAGCAAGA CAAGGATAAC TGGAATGGGC AGCTGAAGCT TCTGCTGGAG 1320
TGGAACCAGC TGGACTTAGC CAATGATGAG ATTTTCACCA ATGACCGCCG ATGGGAGTCT 1380
GCTGACCTTC AAGAAGTCAT GTTTACGGCT CTCATAAAGG ACAGACCCAA GTTTGTCCGC 1440
CTCTTTCTGG AGAATGGCTT GAACCTACGG AAGTTTCTCA CCCATGATGT CCTCACTGAA 1500
CTCTTCTCCA ACCACTTCAG CACGCTTGTC TACCGGAATC TGCAGATCGC CAAGAATTCC 1560
TATAATGATG CCCTCCTCAC GTTTGTCTGG AAATGGTTG CGAACTTCCG AAGAGGCTTC 1620
CGGAAGGAAG ACAGAAATGG CCGGGACGAG ATGGACATAG AACTCCACGA CGTGTCTCCT 1680
ATTACTCGGC ACCCCCTGCA AGCTCTCTTC ATCTGGGCCA TTCTTCAGAA TAAGAAGGAA 1740
CTCTCCAAAG TCATTTGGGA GCAGACCAGG GGCTGCACTC TGGCAGCCCT GGGAGCCAGC 1800
AAGCTTCTGA AGACTCTGGC CAAAGTGAAG AACGACATCA ATGCTGCTGG GGAGTCCGAG 1860
GAGCTGGCTA ATGAGTACGA GACCCGGGCT GTTGAAGTGT TCACTGAGTG TTACAGCAGC 1920
GATGAAGACT TGGCAGAACA GCTGCTGGTC TATTCCTGTG AAGCTTGGGG TGGAAGCAAC 1980
TGTCTGGAGC TGGCGGTGGA GGCCACAGAC CAGCATTTC CCGCCCAGCC TGGGGTCCAG 2040
AATTTTCTTT CTAAGCAATG GTATGGAGAG ATTTCCCGAG ACACCAAGAA CTGGAAGATT 2100

Fig. 12A (1)

ATCCTGTGTC	TGTTTATTAT	ACCCTTGGTG	GGCTGTGGCT	TTGTATCATT	TAGGAAGAAA	2160
CCTGTGACA	AGCACAAGAA	GCTGCTTTGG	TACTATGTGG	CGTTCCTCAC	CTCCCCCTTC	2220
GTGGTCTTCT	CCTGGAATGT	GGTCTTCTAC	ATCGCCTTCC	TCCTGCTGTT	TGCCTACGTG	2280
CTGCTCATGG	ATTTCCATTC	GGTGCCACAC	CCCCCGAGC	TGGTCCTGTA	CTCGCTGGTC	2340
TTTGTCTCT	TCTGTGATGA	AGTGAGACAG	TGGTACGTAA	ATGGGGTGAA	TTATTTTACT	2400
GACCTGTGGA	ATGTGATGGA	CACGCTGGGG	CTTTTTTACT	TCATAGCAGG	AATTGTATTT	2460
CGGCTCCACT	CTTCTAATAA	AAGCTCTTTG	TATTCTGGAC	GAGTCATTTT	CTGTCTGGAC	2520
TACATTATTT	TCACTCTAAG	ATTGATCCAC	ATTTTTTACTG	TAAGCAGAAA	CTTAGGACCC	2580
AAGATTATAA	TGCTGCAGAG	GATGCTGATC	GATGTGTTCT	TCTTCCTGTT	CCTCTTTGCG	2640
GTGTGGATGG	TGGCCTTTGG	CGTGGCCAGG	CAAGGGATCC	TTAGGCAGAA	TGAGCAGCGC	2700
TGGAGGTGGA	TATTCGGTTC	GGTCATCTAC	GAGCCCTACC	TGGCCATGTT	CGGCCAGGTG	2760
CCCAGTGACG	TGGATGGTAC	CACGTATGAC	TTTGCCCACT	GCACCTTCAC	TGGGAATGAG	2820
TCCAAGCCAC	TGTGTGTGGA	GCTGGATGAG	CACAACCTGC	CCCGGTTCCC	CGAGTGGATC	2880
ACCATCCCCC	TGGTGTGCAT	CTACATGTTA	TCCACCAACA	TCCTGCTGGT	CAACCTGCTG	2940
GTCGCCATGT	TTGGCTACAC	GGTGGGCACC	GTCCAGGAGA	ACAATGACCA	GGTCTGGAAG	3000
TTCCAGAGGT	ACTTCCTGGT	GCAGGAGTAC	TGCAGCCGCC	TCAATATCCC	CTTCCCCTTC	3060
ATCGTCTTCG	CTTACTTCTA	CATGGTGGTG	AAGAAGTGCT	TCAAGTGTTG	CTGCAAGGAG	3120
AAAAACATGG	AGTCTTCTGT	CTGCTGTTTC	AAAAATGAAG	ACAATGAGAC	TCTGGCATGG	3180
GAGGGTGTCA	TGAAGGAAAA	CTACCTTGTC	AAGATCAACA	CAAAAGCCAA	CGACACCTCA	3240
GAGGAAATGA	GGCATCGATT	TAGACAACCTG	GATACAAAGC	TTAATGATCT	CAAGGGTCTT	3300
CTGAAAGAGA	TTGCTAATAA	AATCAAATAA	AACTGTATGA	AACTCTAATG	GAGAAAAATC	3360
TAATTATAGC	AAGATCATAT	TAAGGAATGC	TGATGAACAA	TTTTGCTATC	GACTIONATA	3420
TGAGAGATTT	TCAGACCCCT	GGGTACATGG	TGGATGATTT	TAAATCACCC	TAGTGTGCTG	3480
AGACCTTGAG	AATAAAGTGT	GTGATTGGTT	TCATACTTGA	AGACGGATAT	AAAGGAAGAA	3540
TATTTCTTTT	ATGTGTTTCT	CCAGAATGGT	GCCTGTTTCT	CTCTGTGTCT	CAATGCCTGG	3600
GACTGGAGGT	TGATAGTTTA	AGTGTGTTCT	TACCGCCTCC	TTTTTCCTTT	AATCTTATTT	3660
TTGATGAACA	CATATATAGG	AGAACATCTA	TCCTATGAAT	AAGAACCTGG	TCATGCTTTA	3720
CTCCTGTATT	GTTATTTTGT	TCATTTCCAA	TTGATTCTCT	ACTTTTCCCT	TTTTTGATT	3780
ATGTGACTAA	TTAGTTGGCA	TATTGTAAAA	AGTCTCTCAA	ATTAGGCCAG	ATTCTAAAC	3840
ATGCTGCAGC	AAGAGGACCC	CGCTCTCTTC	AGGAAAAGTG	TTTTCATTTT	TCAGGATGCT	3900
TCTTACCTGT	CAGAGGAGGT	GACAAGGCAG	TCTCTTGCTC	TCTTGACTC	ACCAGGCTCC	3960
TATTGAAGGA	ACCACCCCCA	TTCCTAAATA	TGTGAAAAGT	CGCCCAAAAT	GCAACCTTGA	4020
AAGGCACTAC	TGACTTTGTT	CTTATTGGAT	ACTCCTCTTA	TTTATTATTT	TTCCATTAAA	4080
AATAATAGCT	GGCTATTATA	GAAAAATTTAG	ACCATACAGA	GATGTAGAAA	GAACATAAAT	4140
TGTCCCCATT	ACCTTAAGGT	AATCACTGCT	AACAATTTCT	GGATGGTTTT	TCAAGTCTAT	4200
TTTTTTTCTA	TGTATGTCTC	AATTCTCTTT	CAAAATTTTA	CAGAATGTTA	TCATACTACA	4260
TATATACTTT	TTATGTAAGC	TTTTTCACTT	AGTATTTTAT	CAAATATGTT	TTTATTATAT	4320
TCATAGCCTT	CTTAAACATT	ATATCAATAA	TTGCATAATA	GGCAACCTCT	AGCGATTACC	4380
ATAATTTTGC	TCATTGAAGG	CTATCTCCAG	TTGATCATTG	GGATGAGCAT	CTTTGTGCAT	4440
GAATCCTATT	GCTGTATTTG	GGAAAAATTTT	CCAAGGTTAG	ATTCCAATAA	ATATCTATTT	4500
ATTATTAAAT	ATTAAAATAT	CGATTTATTA	TTAAAACCAT	TTATAAGGCT		

Fig. 12A (2)

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TTTTCATAAA 4560
TGTATAGCAA ATAGGAATTA TTAACCTGAG CATAAGATAT GAGATACATG AACCTGAACT 4620
ATTAATAATA AATATTATAT TTAACCCTAG TTAAAGAAGA AGTCAATATG CTTATTTAAA 4680
TATTATGGAT GGTGGGCAGA TCACTTGAGG TCAGGAGTTC GAGACCAGCC TGGCCAACAT 4740
GGCAAAACCA CATCTCTACT AAAAATAAAA AAATTAGCTG GGTGTGGTGG TGCCTCCTG 4800
TAATCCCAGC TACTCAGAAG GCTGAGGTAC AAGAATTGCT GGAACCTGGG AGGCGGAGGT 4860
TGCAGTGAAC CAAGATTGCA CCACTGCACT CCAGCCGGGG TGACAGAGTG AGACTCCGAC 4920
TGAAAAATAA TAAATAAATA AATAAATAA TAAATAAATA AATATTATGG ATGGTGAAGG 4980
GAATGGTATA GAATTGGAGA GATTATCTTA CTGAACACCT GTAGTCCCAG CTTTCTCTGG 5040
AAGTGGTGGT ATTTGAGCAG GATGTGCACA AGGCAATTGA AATGCCATA ATTAGTTTCT 5100
CAGCTTTGAA TACTACTATA ACTCAGTGGC TGAAGGAGGA AATTTTAGAA GGAAGCTACT 5160
AAAAGATCTA ATTTGAAAAA CTACAAAAGC ATTAATAAAA AAAGTTTATT TTCCTTTTGT 5220
CTGGGCAGTA GTGAAAAATA CTAATCACA CATTCACTAT GTTTGCAAGG AATTAACACA 5280
AATAAAAGAT GCCTTTTAC TTAAACGCCA AGACAGAAAA CTTGCCCAAT ACTGAGAAGC 5340
AACTTGCAAT AGAGAGGGAA CTGTTAAATG TTTTCAACCC AGTTCATCTG GTGGATGTTT 5400
TTGCAGGTTA CTCTGAGAAT TTTGCTTATG AAAAATCATT ATTTTATAGT TAGTTCACAA 5460
TAATGTATTG AACATACTTC TAATCAAAGG TGCTATGTCC TTGTGTATGG TACTAAATGT 5520
GTCCTGTGTA CTTTTCACAA ACTGAGAATC CTGCGGCTTG GTTTAATGAG TGTGTTTCATG 5580
AAATAAATAA TGGAGGAATT GTCAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA 5640
AAAAAAAAA AAAAAAAAAA AAAAAAAAAA 5668

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Fig. 12A (3)

MRNRRNDTLDSTRTRYSSASRSTDLSYSESDLVNF IQANFKKRECVFFTKDSKATENVCKCGYAQSQHME
GTQINQSEKWNYYKKHTKEFPTDAFGDIQFETLGKKGKYIRLSCDTDAEILYELLTQHWHLKTPNLVISVT
GGAKNFALKPRMRKIFSRLIYIAQSKGAWILTGGTHYGLTKYIGEVRDNTISRSEENIVAIGIAAWGM
VSNRDTLIRNCDAEGYFLAQYLMDDFTRDPLYILDNNHHLALLVDNGCHGHPTVEAKLRNQLKHHISERT
IQDSNYGGKIPIVCFAQGGGKETLKAINTSIKNKIPCVVVEGSGRIADVIASLVEVEDAPTSSAVKEKLV
RFLPRTVSRLSEEETESWIKWLKEILECSHLLTVIKMEEAGDEIVSNAISYALYKAFSTSEQDKDNWNGQ
LKLLEWNQLDLANDEIFTNDRRWESADLQEVMTALIKDRPKFVRLFLENGLNLRKFLTHDVLTELFNS
HFSTLVYRNLQIAKNSYNDALLTFVWKL VANFRRGFRKEDRNGRDEMDIELHDVSPITRHPLQALFIWAI
LQNKKELSKVIWEQTRGCTLAALGASKLLKTLAKVKNDINAAGESEELANEYETRAVELFTECYSSDEDL
AEQLLVYSCEAWGGSNCLELAVEATDQHFTAQPGVQNFLSKQWYGEISRDTKNWKIILCLFIIPLVGCGF
VSFRKKPVDKHKKLLWYYVAFFTSPFVVFSWNVVFYIAFLLLFAYVLLMDFHSVPHPPPELVLYSLVFVLF
CDEVQWYVNGVNYFTDLWNVMDTLGLFYFIAGIVFRLHSSNKSSLYSGRVIFCLDYIIFTLRLIHIFTV
SRNLGPKIIMLQRMIDVFFFLFLFAVMMVAFGVARQGILRQNEQRWRWIFRSVIYEPYLA MFGQVPSDV
DGTTYDFAHCTFTGNESKPLCVLDEHNLPRFPEWITIPLVCIYMLSTNILLVNLLVAMFGYTVGTVQEN
NDQVWKFORQYFLVQEYCSRLNIPFPFIVFAYFYMVVKCKFKCCCKEKNMESSVCCFKNEDNETLAWEGVM
KENYLVKINTKANDTSEEMRHRFRQLDTKLNDLKGLLKEIANKIK

Fig. 12B